



Project planning practices based on enterprise resource planning systems in small and medium enterprises — A case study from the Republic of Macedonia

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Abstract

This paper examines whether Macedonian SMEs plan for the implementation of ERP projects and studies the effect of project planning practices on project success. Four project planning measures were taken into consideration: business case development, scope planning, baseline plan development and risk planning along with three measures of project success; customer satisfaction, perceived quality of the project and success of the implementation process. The study was based on a survey that was conducted on 30 SMEs in the Republic of Macedonia. Data dimensionality was reduced through factor analysis and relationships between the two sets of variables were analyzed by correlation and regression analyses. The findings demonstrated that Macedonian SMEs implemented general project planning practices, even though they did not consider the planning process as a separate phase of the ERP implementation. However, they did not use any particular project planning tools, such as the Gantt chart or WBS. Of the project planning practices that were surveyed, the most practiced were the development of a business case, project scope and baseline plan. The least practiced were risk planning practices. Considering the success of the ERP implementations, this study demonstrated that most of the companies' representatives perceive this undertaking as successful in terms of client satisfaction and perceived quality measures. A higher percentage of respondents found their ERP implementations unsuccessful in terms of implementation process measures, when compared to the previous two success parameters.

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1. Introduction

Enterprise Resource Planning (hereinafter: ERP) systems have been developed to enable overall integration of business processes with the end result being the efficient deployment of resources and the effective management of the whole enterprise (Leon, 2008). The implementation of such systems is certainly not an easy task. It requires companies to commit a significant amount of resources and to implement a large scale changes that will affect every aspect of the functioning of the company (Kumar et al., 2002). This

causes various organizations (Roncovic and Makarovic, 2010, 2011; Roncovic and Modic, 2011) to experience difficulties resulting in their ERP systems being implemented late or over budget. Little (2011) and Pinto and Prescott (1990) argued that project planning is a significant facilitating factor in implementing projects successfully. It directly affects the cost and schedule performance of projects (Hamilton and Gibson, 1996; Wang and Gibson, 2010). Dvir (2005) argued further that the amount of effort invested in defining the project goals, functional requirements and specifications has a positive effect on the project success. Aladwani (2002) also contended that IT project planning plays a major role in achieving success in IT projects. Al-Mashari et al. (2003), Glenn (2008) and Tchokogué et al. (2005) acknowledged this for ERP projects in particular. Many IT projects fail at the

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beginning rather than at the end, because of insufficient planning (Phillips, 2011). Good planning is in fact halfway to success. Therefore the implementation of ERP systems should also first start with the planning of the system, before addressing the higher stages (Shanks et al., 2003).

Furthermore, Glenn (2008) argued that project planning is one of the five common factors that can determine the success of an ERP implementation. Taking into consideration the high costs associated with ERP implementation and the cumbersome process of realization, the importance of the planning issues cannot be overemphasized (Chen, 2001). Mabert (2003) in their study of the US manufacturing sector, also discovered that companies emphasize the importance of planning an ERP implementation.

Ngai et al. (2008) conducted a literature review on Critical Success Factors (hereinafter: CSFs) in the implementation of ERPs across 10 different regions. When considering project management, they state that a clear and defined project plan including goals, objectives, strategy, scope, schedule, and so forth was frequently cited in CSFs for ERP implementation in almost all of the regions and countries examined in their study. Furthermore, ERP projects involve significant levels of different types of risk (Iskanius, 2009). These should be taken into account and appropriate mitigation strategies and contingency plans should be developed. Therefore, based on the evidence provided in the literature, the main hypothesis is that project planning practices have a positive effect on project success.

Even though ERP systems were first developed and implemented in the developed countries, companies from developing countries are also embracing these systems. They also account for CSFs when implementing their ERP projects. As the study of Mooheba et al. (2010) indicated, project management is of similar importance for companies from both developing and developed countries. Large companies were also the first to implement ERP systems, but as O'Leary (2002) assumed, ERP systems can benefit both large scale companies as well as small and medium-sized enterprises (hereinafter: SMEs). Many ERP software packages have been developed recently to suit the needs of SMEs, specifically in terms of costs and functional scope.

Macedonian companies are certainly following the trend of implementing ERP systems mainly for lower scale ones, primarily because of resource constraints. Many of them implement ERP in order to improve their business processes, but some of them to comply with legislative requirements. Usually, only a few modules are implemented, mainly for finance, inventory and accounting purposes. Santa (2010), in his case study conducted in a small Macedonian company, found that ERP implementation was run intuitively based on the business experience of the owner, without employment of any particular project management practices. However, Ordanoski (2010), a Macedonian programmer and entrepreneur, realized the importance of having developed a project and assigned a team to work on an ERP implementation, and recommended these practices to other Macedonian managers.

This study investigated whether Macedonian SMEs in general implement project planning practices, and whether they influenced the success of ERP implementation. The initial assumption was that successful ERP implementation depends on implementing

sound project planning practices, as suggested by the literature. Therefore the primary research question was whether IT project planning has an impact on project success. The findings were expected to bring some positive value to a topic on which very little research has been done and to incite more research in the future. This contribution refers especially to the literature and industry in developing countries where scholars have significant interest in the CSFs of the ERP implementations (Amid et al., 2012). The survey was employed as a technique for primary data collection. Both the planning and the success of the project were measured via several dimensions. A combination of exploratory and confirmatory factor analysis was used to reduce the data collected through Likert-type items and to produce these dimensions. After performing this analysis, correlation and regression analyses were used in order to describe the relationships between the project planning practices and project success measures (Dvir, 2005).

2. The study

2.1. Methodology

The project planning practices were taken as independent variables to be tested. Twenty one variables, as shown in Table 1, were used to measure the planning effort that companies put in when implementing ERP. They were all organized along four dimensions: business case development practices, scope planning practices, baseline plan development practices and risk planning practices.

The first dimension, business case development, measures practices involved in the initial planning that result in the creation of a business case. Salomo et al. (2007) used a scale of nine items to measure this dimension. The same items were also used in this study, except that two of them (Alternative market scenarios and Fit with core competences) were omitted as they were not considered applicable to this case. Since no comprehensive scales were identified for the scope planning and baseline plan development practices, original scales were developed in accord with the recommendations of Saunders et al. (2003) and Hair et al. (2010). The risk planning dimension was measured on three items used in the study of Salomo et al. (2007).

Respondents were asked to say to what extent they agreed or disagreed with each statement that indicated usage of a certain planning practice (1 — strongly disagree; 7 — strongly agree). Hakkinen and Hilmoli (2008), as well as Aladwani (2002), utilized the seven-point Likert scale when they measured project planning items. Therefore, the same seven-point Likert scale was used in this case, too.

In order to judge whether companies implemented certain planning practices or not, variables were recoded and values classified into two groups: not implemented (encompassing answers from 1 — completely disagree to 4 — neutral) and implemented (encompassing answers from 5 — partially agree to 7 — completely agree). The "Recode into different variable" option in SPSS was used as suggested by Brace et al. (2003). The same option was used for variables that were expressed in negative terms to reverse code them so that high or low values

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